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DIVISION OF ADMINISTRATION
OFFICE OF STATEWIDE TECHNOLOGY

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Subject: Linux Usage Directive

The Office of Information Technology (OIT) has determined that it is in the best interest of the state to consider the use of Linux on a limited basis where it is more cost beneficial or technically advantageous, as outlined in the directives that follow.

Background

The Linux operating system is rapidly gaining support and acceptance in the IT Data Center. Currently Linux represents approximately 10% of the market share in server operating systems with 90% of this installed base on the Intel platform[1]. Market analysts predict that by 2007 Linux will hold a 30% market share of server operating system deployments with up to a 45% share of new server deployments[2]. It is predicted that by 2006 the Linux kernel will contain 70 percent of the performance and functionality available in Unix.[3]

Linux has begun to penetrate Louisiana's state government IT environment as well with over 16 organizations reporting some form of Linux deployment. The majority of deployments reported are supporting servers running auxiliary applications such as DNS, DHCP, Internet Proxy, or file/print servers. The installed base is largely devoted to the Red Hat and SuSE distributions of the operating system although a total of seven different distributions are represented.
Based on an analysis of Linux technology, commercial market data, independent IT analysts research, and the State's IT environment, OIT is issuing a directive to establish the following criteria for acceptable deployment of Linux:

- Linux Distributions
- Categories of Application Software to be deployed on Linux based servers
- Platforms for Linux Deployment

The option to deploy Linux based servers will be at the discretion of individual IT organizations and within the criteria of this directive. In all cases Linux deployment should be supported by an organization's specific business case with respect to its existing technical environment and a Total Cost of Ownership analysis. Any deployment of Linux must support interoperability with all other published Statewide IT Standards.

[1] Metagroup Delta 2268 (June 6,2003)

[2] Metagroup Delta 1055 (February 28, 2003)

[3] Gartner CIO Update IGG-11192003-01 (November 19, 2003)

Distributions

The Linux operating system is open source software that is licensed by a General Public License which is available free of charge. Some vendors however package the free Linux kernel with additional software to extend the operating system's functionality and manageability. Linux software packaged in this manner is called a Linux "Distribution". While the core Linux operating system is still free, providers may charge a license fee for their specific Distribution. Variations in Distributions may affect the operability of software applications and independent software vendors (ISV's) generally certify their applications on specific Linux Distributions. Operating System software is commonly packaged with the procurement of the server itself and an OEM software license is provided. Linux software maintenance and technical support is generally not included with the acquisition of a Distribution and may be acquired as a separate item from a choice of providers including the Distribution publisher and the server vendor. In the U. S. server market Red Hat has a 60% market share, SuSE has a 20% market share, and the remaining 20% of the market is fragmented among many specialized or niche distributions.

OIT Directive - When deploying Linux, either Red Hat or SuSe shall be used. Deployment of distributions other than Red Hat or SuSe require OIT approval and will be evaluated on a case-by-case basis.

Justification:

- Market research shows that SuSE and Red Hat have dominant market presence for Linux Server Operating Systems in the U. S. commercial market with a combined market share over 80%.
- Red Hat and SuSE have the highest level of support from ISV's for certification of application software. ISV's are increasing positioning these Linux distributions for tier 1 support in regards to providing software patches and the release of new application versions.
- The SuSE and Red Hat are the only distributions currently available from the server providers who account for the overwhelming majority of the State's server acquisitions (Dell, IBM, HP).
- Enterprise class software maintenance and technical support are available for the Red Hat and SuSE distributions from a wide range of providers.
- Limiting the number of approved distributions provides the State with opportunities to leverage software maintenance and technical support contracts.
- Limiting the number of approved distributions increases the potential for application portability and interoperability within the State's IT environment.
- Limiting the number of approved distributions provides for increased efficiency in server management.

Functions

Linux has gained considerable acceptance in the commercial IT data center supporting servers at the edge of the enterprise. These servers support networking functions (proxy, DHCP, firewall, DNS), file and print functions, messaging and mail functions, and single function commodity servers such as web servers (Apache) or web application servers (BEA, JBoss, Websphere).[4] Servers supporting these functions dominate the installed base of Linux servers in the Louisiana State Government's IT environment. The Linux/Intel platform is also gaining momentum as a RDBMS platform. However, the applicability of this environment is dependent on the characteristics of the business application that will be implemented with the RDBMS.

OIT Directive – Linux is approved for deployment on servers that support network functions (i.e. DNS, DHCP, Proxy, Firewall, Routers), auxiliary functions (i.e. file/print), and web services (i.e. Apache, Websphere). Deployment of Linux for other production functions shall be justified and requires OIT approval.

Justification:

- Applications in the approved categories are generally mature and stable with limited requirements for interoperability with other systems. These auxiliary systems seldom require advanced technology capabilities from operating system software.
- Often significant cost savings may be realized by the migration of applications to a Linux/Intel platform.
- The cost benefit for the deployment or migration of applications outside of the approved categories has proven to vary widely dependent upon a broad range of criteria for an individual implementation.
- The technical capabilities and availability of supporting software for Linux has yet to demonstrate sufficient maturity for the implementation of enterprise class applications such as ERP systems.

Platforms

The Linux operating system is supported on a wide variety of hardware platforms ranging from entry-level Intel based servers to midrange RISC servers to enterprise class mainframe servers. Linux is available for each of the major server platforms deployed in the State's IT environment including Intel based servers (Dell PowerEdge, IBM xSeries, HP Proliant), RISC based Servers (IBM pSeries, Sun SunFire, HP HP-9000), AS/400 (IBM iSeries), and the mainframe (IBM zSeries).

OIT Directive – Linux is approved for deployment on Intel based servers, RISC, and IBM zSeries mainframes.

Justification:

[4] Metagroup Delta 2786 (February 24, 2004)

- The Linux kernel was originally developed for the Intel system architecture and its technical capabilities are optimized for this platform.
- The technical capabilities of the Linux operating system integrate well with entry-level servers containing 1 to 4 processors.
- The most common business cases that support deployment of Linux servers realize cost savings by migrating applications from Unix/RISC platforms to less expensive Linux/Intel platforms.
- OIT research has not revealed a business case to support the deployment of Linux on AS/400 platforms.
- Linux partitions in a RISC or mainframe environment are technically acceptable and may be supported by specific business cases. A detailed cost benefit analysis must be performed to determine the overall return on investment for deployment of this environment.

Effective immediately, all entities under the authority of OIT as defined by R.S. 39:15.1, et seq, must comply with the above directives.

If you have any questions, please contact James Howze or Barbara Oliver at 225-219-9470.